

# EXHIBIT 9

**EXPERT REPORT  
of  
HENRY S. FARBER  
In Connection With**

**Brady et al. v. Airline Pilots Association et al.  
October 12, 2012**

## **I. Qualifications**

1. I am the Hughes-Rogers Professor of Economics at Princeton University, where I have served on the faculty since 1991. I served on the faculty of the Department of Economics of the Massachusetts Institute of Technology from 1977 through 1991. I received a Ph.D. in economics from Princeton University in 1977, a Master of Science in Industrial and Labor Relations from Cornell University in 1974, and a B.S. in economics from Rensselaer Polytechnic Institute in 1972. Among other topics, I teach courses in labor economics (the analysis of wages, hours, employment, unemployment, labor unions, and other topics related to the workforce) and econometrics (the application of mathematical statistics to problems in economics). I have written numerous scholarly articles in both of these subject areas, and my research has been widely published in academic and professional journals. I am a Research Associate of the National Bureau of Economic Research (NBER) and a Research Fellow of the Institute for the Study of Labor (IZA). I am a Fellow of the Econometric Society, a Fellow of the Society of Labor Economists, and a Fellow of the Labor and Employment Relations Association. I am a member of the Labour and Income Statistics Advisory Committee of Statistics Canada. A complete description of my qualifications is contained in my curriculum vitae and a list of my recent testimony is attached as Appendix A to this report. I have also consulted and testified as an expert witness in numerous cases involving labor economics.

2. My time is being billed at the rate of \$750 per hour for my work in this matter. This is my normal hourly rate for this type of work.

## II. Background and Assignment

3. In January 2001 American Airlines (“American”) agreed to purchase Trans World Airlines, Inc. (“TWA”).<sup>1</sup> This agreement was consummated in April 2001.<sup>2</sup> At the time of the purchase, TWA was weak financially but was still flying planes and entered bankruptcy as a condition of its deal with American.<sup>3</sup> TWA pilots were represented by a union known as the Air Line Pilots Association (“ALPA”), which remained their bargaining agent through April 2002.<sup>4</sup> American pilots were represented by a union known as the Allied Pilots Association (“APA”).

4. The TWA pilots waived a provision in their contract with TWA that prescribed the procedure to be used in merging seniority lists in the case of TWA combining with another airline.<sup>5</sup> In November 2001, American and the APA agreed on a method to merge the American and TWA pilot seniority lists. This method was recorded in a document known as “Supplement CC.”<sup>6</sup>

5. Seniority is an important factor in a pilot’s career. It influences his or her home base, his or her role in the cabin (captain/first officer etc.), the routes and schedules he or she flies, the type of aircraft the pilot flies and also the order in which layoffs or “furloughs” occur. Thus, a pilot’s relative position on the seniority list is a central determinant of the pilot’s earnings.

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<sup>1</sup> *Brady et al v. Air Line Pilots Association* Second Amended Restated, January 27, 2003 (“complaint”), ¶ 32.

<sup>2</sup> Complaint, ¶ 54.

<sup>3</sup> Asset Purchase Agreement Between American Airlines, Inc. as Purchaser and Trans World Airlines, Inc. as Seller, January 9, 2001, (ALPA 013296-013374) at ALPA 013301

<sup>4</sup> Complaint, ¶ 35.

<sup>5</sup> In this report I will discuss both mergers and acquisitions of airlines and merged seniority lists. For clarity, I will refer to combinations of airlines as either “combinations” or “transactions.” I will use “merge” and “merged” to refer to integrating seniority lists.

<sup>6</sup> Complaint, ¶ 61 and ALPA 1507-1524.

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6. As of April 2001, there were 11,548 American pilots and 2,337 TWA pilots. 1,241 TWA pilots were placed at the bottom of the merged list. (This arrangement is sometimes called a “bottom staple.”) The remaining 1,096 TWA pilots were interspersed with American pilots in an approximate 8:1 ratio beginning immediately above those former TWA pilots who were stapled to the bottom of the list, leaving the 2,588 most senior slots on the list populated by American pilots only.<sup>7</sup> While the ability of American pilots to bid on Saint Louis routes was restricted, this “fence” did not protect former TWA pilots from being bumped by American pilots with more favorable positions on the seniority list in the event of a furlough.<sup>8</sup>

7. The plaintiffs in this matter are a class of airline pilots who worked for TWA prior to the acquisition. The complaint defines the class as follows:

... all persons formerly employed by TWA, Inc., who have become or may become employed as pilots by TWA, LLC as a result of the April 2001 asset transaction between American and TWA.<sup>9</sup>

They alleged that their former union, ALPA, failed in its “duty of fair representation” in connection with the merger of the TWA and American Airlines pilot seniority lists.<sup>10</sup> They also alleged that, had ALPA met its duty of fair representation, their placement on the merged seniority list would have been more favorable than on the actual merged seniority list. In addition, they alleged that if they had enjoyed more favorable positions on the merged seniority list, they would have earned more than they actually did.<sup>11</sup> Based on these allegations, the

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<sup>7</sup> The source for these figures is the computer file “Copy of Seniority List” provided by counsel for the plaintiffs. The final seniority list also included pilots hired after the acquisition but before the list was finalized. These pilots were placed below all of the former TWA pilots.

<sup>8</sup> Supplement CC, at ALPA 001519.

<sup>9</sup> Complaint, ¶ 21

<sup>10</sup> Complaint, ¶ 2.

<sup>11</sup> Complaint, ¶ 83.

plaintiffs have asked the court to order ALPA to compensate the plaintiffs for the monetary losses they suffered as a result of ALPA's failure to meet its duty of fair representation.<sup>12</sup>

8. I understand that a jury has already decided that ALPA did fail in its duty of fair representation.<sup>13</sup> I also understand that the extent of the monetary losses the plaintiffs suffered as a result of ALPA's failure remains to be determined. As part of evaluating these losses, counsel for the plaintiffs have asked me to analyze American's acquisition of TWA and to generate an estimate of a merged seniority list that would have resulted from the combination of the two airlines had ALPA met its duty of fair representation. (I will refer to this hypothetical seniority list as the "but-for" seniority list.) In this report, I describe my analysis of this topic and present my estimate of the "but-for" seniority list. I have attached a list of the materials I reviewed in forming my opinions in Appendix B.

### **III. Summary of Opinions**

9. I present data on the relative seniority ranks of the former TWA pilots and American pilots on their post-transaction seniority list and compare those data to similar data from other transactions. My analysis of these data indicate that the gap in average seniority ranks between TWA pilots and American pilots was larger than one would expect given the circumstances at the time of TWA's acquisition. I conclude from my analysis that, had ALPA met its duty of fair representation, the former TWA pilots would have had more favorable positions on the merged seniority list, on average.

10. My best estimate of the "but-for" seniority list includes a bottom staple of 350 former TWA pilots with the remaining 1,887 former TWA pilots merged with the American

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<sup>12</sup> Complaint, page 31.

<sup>13</sup> Brady et al v. Air Line Pilots Association, Jury Verdict, July 13, 2011.

pilots using a ratio of 5.81:1. I base this estimate on a composite of seven other airline transactions in which the acquired airline, like TWA, was in financial difficulties but still flying at the time the deal was struck and which, also like TWA, brought valuable assets to the combined company. These seven transactions are: Flying Tiger/Seaboard, FedEx/Flying Tiger, Delta/Pan Am, Delta/Western, Air Canada/Canadian, Texas International/Continental and Alaska/Jet America.<sup>14</sup>

11. My estimate of the “but-for” seniority list, calculated using these parameters, is included in the back up materials for my report.<sup>15</sup> In the absence of restrictions based on equipment or routes, this list can be used as it stands to calculate monetary losses. Alternatively, if eligibility restrictions based on routes or equipment are desired, then a subset of the estimated “but-for” seniority list can be created that maintains the ordering but consists only of pilots who are eligible for the particular route or equipment. Assignments of pilots to the restricted slots can then be made using this subset seniority list.

12. I also present two further alternative merged seniority lists. These two additional lists represent an upper and a lower bound on how favorable the “but-for” seniority list might have been to the former TWA pilots. That is, these bounds provide a sense of the possible margin of error for my estimate. To calculate these bounds, I first discarded from the seven comparable seniority list mergers those mergers with the most favorable outcome for the pilots

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<sup>14</sup> There is one other seniority list merger in my data where the acquired airline was in financial difficulty at the time of the merger. This is the merger that resulted from Republic’s acquisition of Frontier. Because of a pre-transaction mismatch in the types of equipment in service at the airlines being combined, the former Frontier pilots were placed in unusually high positions on the merged seniority list. I have not included the Republic/Frontier seniority list merger in my group of comparable mergers because of these special circumstances. This decision is conservative in that including this merger would have resulted in an estimated “but-for” seniority list that would have been more favorable to the TWA pilots.

<sup>15</sup> See sen\_list1.pdf.

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from the acquired airline (Flying Tiger/Seaboard) and the least favorable outcome for the pilots from the acquired airline (Alaska/Jet America). I then chose the most favorable outcome and the least favorable outcome from the remaining five comparable seniority list mergers as upper and lower bounds.

13. My upper bound “but-for” list is based on the combination of the FedEx and Flying Tiger seniority lists. This list features a bottom staple of 210 former TWA pilots and a ratio of 5.43:1 for the remaining former TWA pilots. This upper bound list is included in the back up materials for my report.<sup>16</sup>

14. My lower bound “but-for” list is based on the combination of the Texas International and Continental seniority lists. It features a bottom staple of 521 former TWA pilots and a ratio of 6.36:1 for the remaining former TWA pilots. This lower bound list is included in the back up materials for my report.<sup>17</sup>

15. As with my estimated “but-for” list, these upper and lower bound lists can be used either with or without restrictions based on routes or equipment.

16. The remainder of my report explains the reasoning underlying my analysis and opinions. The report reflects the results of my analysis to date. If I receive additional relevant information, I may supplement my opinions in response.

#### **IV. Considerations in Merging Seniority Lists**

17. Transactions in which two or more airlines combine are common in the airline industry. Since 1980 there have been at least 40 combinations of airlines in the U.S.<sup>18</sup> Airlines generally use seniority lists to manage the careers of their pilots. As a result, when two or more

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<sup>16</sup> See sen\_list2.pdf.

<sup>17</sup> See sen\_list3.pdf.



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airlines combine, their seniority lists must be merged. Because each combination of airlines requires a merger of seniority lists and because information on these mergers is often available, it is possible to gather data on what factors influence the nature of the merged seniority list.

18. In this section of my report I describe how I collected data on other mergers. I begin with a short discussion of the institutional background of how seniority lists are merged. I then describe the factors that are taken into account when seniority lists are merged. Finally, I present data on the relative ranks of the former TWA pilots and American pilots on their post-merger seniority list and compare these data to similar data from other mergers.

A. Institutional Background

19. Normally, the bargaining representatives of the pilots from the airlines involved in the transaction engage in negotiations to determine the merged seniority list. These bargaining agents are sometimes the unions and sometimes Master Executive Councils (“MECs”) of the unions associated with the individual parent airlines. If the negotiations lead to an agreement, the merged seniority list is normally recorded as an amendment to the collective bargaining agreement (“CBA”) between the successor MEC or union and the combined airline.

20. The ALPA merger policy in place at the time of the American acquisition of TWA describes in detail “. . . the process by which the affected pilot groups of ALPA airlines arrive at the merged seniority list for presentation to management, through their respective merger representatives, using arbitration if necessary.”<sup>19</sup> The document further states that “[t]he Fundamental purpose of this policy is to provide protection for the employment rights and

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<sup>18</sup> See the document US Mergers.pdf in my back up materials for a list of these mergers.

<sup>19</sup> P-20-ALPA-policy.pdf, September 1998, Preamble, page 2.

interests of ALPA flight deck crew members in an orderly, expeditious, and equitable manner.”<sup>20</sup>

While pilots at American were not represented by ALPA, it is reasonable that ALPA, in its fair representation of the TWA pilots, would have been guided by these principles in its negotiation with the American pilots represented by the APA.

21. Because the interests of pilots from two airlines that are combining are often directly opposed (each would like to be higher on the list), it can be difficult for the parties to agree on a merged seniority list through negotiation. An additional complication is that pilots at both merging airlines may be represented by the same union (e.g., ALPA). In these cases, there is a clear conflict of interest for the union representing both sets of pilots. As a result of these factors, an arbitrator is often called upon to determine the merged seniority list.

22. A procedure that includes negotiation, followed by arbitration if the parties cannot reach an agreement, is now required by law when the pilots are represented by different unions. The McCaskill-Bond statute was passed in December 2007. It requires that such mergers follow the procedures described in Sections 3 and 13 of the Civil Aeronautics Board’s Allegheny Mohawk Labor Protective Provisions of 1972.<sup>21</sup> Section 3 requires that the merger of seniority lists be “fair and equitable” and provides for arbitration. Section 13 describes the required arbitration procedures.

23. Arbitration awards in particular cases result from careful investigation of information provided to the arbitrator, including specific proposals by each group of pilots of methods of merging the lists, as part of the arbitration process. The arbitrator considers the

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<sup>20</sup> P-20-ALPA-policy.pdf, September 1998, Part 1B Purpose and Scope of Merger Policy reaffirmed, page 2.

<sup>21</sup> Neumann, A., *Airline Mergers and Labor Integration Provisions Under Federal Law*, Information Brief, Minnesota House Of Representatives Research Department, St. Paul, MN, June 2008 and *Standard Allegheny Mohawk Labor Protective Provisions*, Published at 59 C.A.B. 45.

proposal and the arguments for and against each approach and decides on a merged seniority list that is normally different from each of the parties' proposals. Written arbitration awards vary in the detail in which the arbitrator's reasoning is presented, but it is clear that arbitrators consider a range of factors. These arbitration awards are an important source of information on how disputes over merging seniority lists are resolved, including the factors that led the arbitrator to the particular outcome.

24. Arbitration awards regarding mergers of seniority lists in other airline combinations are relevant sources of information for at least two reasons. First, it is possible that, had ALPA met its duty of fair representation of the TWA pilots, the merger of the TWA and American seniority lists would have been decided through arbitration. Second, arbitrators are motivated to provide a merged seniority list that meets the needs of both groups of pilots in a fair and equitable way. Not only are the arbitrators tasked to render decisions in this manner, but, given that the unions will select arbitrators in future cases, the likelihood of an arbitrator being selected for future cases is affected by the perceived fairness and equity of that arbitrator's earlier decisions.<sup>22</sup>

B. Factors Considered in Merging Seniority Lists

25. With the assistance of my staff, I have reviewed information on 41 seniority list mergers. These include 29 arbitration decisions, 11 amendments to CBAs, and 1 reported federal decision. A complete list of these mergers is contained in the list of documents considered, (Appendix B).

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<sup>22</sup> See, for example, Ashenfelter, Orley C., *Arbitration and the Negotiation Process*, The American Economic Review, Vol. 77, No. 2, May 1987 and Bloom, David E. and Cavanagh, Christopher L. *An Analysis of the Selection of Arbitrators*, The American Economic Review, Vol. 76, No. 3, June 1986.

26. The arbitration decisions are a particularly rich source of data for estimating the “but-for” seniority list because, unlike amendments to CBAs, arbitrators provide a written report describing the results of their deliberations, including an account of the reasons for their decision. As I have indicated, arbitrators attempt to produce merged lists that are perceived as fair and equitable by both sets of pilots. As such, the arbitrators’ reasoning provides a guide to factors that determine an appropriate outcome.

27. Arbitrators commonly consider a number of factors. One constant is that they attempt to preserve the pre-transaction relative ranks of the pilots on the pre-transaction seniority lists. So that, for example, if pilots A and B both worked for the same airline prior to the transaction and if pilot A was senior to pilot B on the pre-transaction seniority list, he or she should be senior to pilot B on the post-transaction seniority list.

28. Pre-transaction relative ranks can be preserved by ranking pilots on the merged list in the order of their dates of hire with their pre-transaction employers, placing the pilot having the longest service with either prior employer at the highest rank. This is called a “date-of-hire” merge.

29. Pre-transaction relative ranks can also be preserved by means of a “ratio” merge, with or without a staple. In a ratio merge, the merged list is formed by moving down each pre-merger seniority list selecting a given number of pilots from one airline (the ratio) before selecting a pilot from the other. If any pilots from either airline remain after all pilots from one of the airlines have been assigned a position on the merged list, the remaining pilots are “stapled” to an end of the list. This staple is at the bottom of the list if the ratio merge began at the top or at the top of the list if the ratio merge began at the bottom.

30. A “straight-ratio” merge is a merge where the ratio used is the number of pilots in the larger group divided by the number of pilots in the smaller group. For example, if airline A had 200 pilots prior to the transaction and airline B had 100 pilots prior to the transaction, the straight ratio would be 2:1. A merging of lists using the straight ratio in this case would imply selecting the two most senior pilots from airline A and placing them at the top of the new list, then selecting the most senior pilot from airline B and placing him or her third on the new list. Next, the third and fourth most senior pilots from airline A would be placed fourth and fifth on the new list and the second most senior pilot from airline B would be placed sixth on the new list. And so on. There is no stapling in a straight ratio merge.

31. A ratio merge using other than the straight ratio will result in either or both a top staple or a bottom staple, depending on the ratio used relative to the straight ratio as well as any stapling that is done prior to the ratio merge.

32. In addition to preserving pre-transaction relative ranks, arbitrators generally attempt to preserve the career expectations of both groups of pilots. Such expectations include likelihood of promotion on one hand and likelihood of furlough on the other. This leads arbitrators to consider a number of factors related to the career prospects of the pilots absent the transaction.

33. As a first example, consider the combination of airline A and airline B. Suppose that airline A was in reasonably good financial condition but the financial condition of airline B was sufficiently poor that it had ceased flying or was expected to cease flying imminently absent the combination with airline A. In this case, it may be likely that airline B’s pilots would have had to seek work elsewhere. Since, in any future jobs, the (former) airline B pilots would start at the bottom of their new employers’ seniority lists, the airline B pilots have minimal career

expectations at airline B absent the transaction, and they could expect to be placed lower on the merged seniority list than if airline B were in better financial health.<sup>23</sup>

34. As a second example, consider the combination of airline C and airline D. Suppose that airline C was in reasonably good financial condition and that airline D was in worse financial condition than airline C but was still flying and was expected to continue to fly absent the transaction, perhaps through an alternative combination or other type of restructuring. In this case, it is more likely that airline D's pilots would continue to work for airline D (or for some other combination including airline D) absent the transaction. In this case, at least some of the airline D pilots have reasonable career expectations at airline D absent the transaction, and, while they may be placed somewhat lower than the airline C pilots on the merged seniority list, they would do better than the airline B pilots in the preceding example.<sup>24</sup>

35. Finally, as a third example, consider the combination of airline E and airline F with similar equipment types where both airlines are in reasonably good financial condition. In this case, both groups of pilots have reasonable (and equivalent) career expectations absent the transaction, and we would expect something close to a "fair" merge, perhaps using a straight ratio.<sup>25</sup>

36. In summary, pilots from airlines in weak financial health that are not expected to stop flying can expect to fare better in the merged seniority list, other things being equal, than pilots from airlines that had ceased flying and worse than pilots from financially healthy airlines. It is worth noting that bankruptcy, per se, is not a clear indicator that an airline will cease flying.

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<sup>23</sup> Arbitration Report of George Nicolau in Continental Airlines, Inc./Frontier Airline, 1987. ALPA 055291-055292.

<sup>24</sup> Arbitration Report of Jerome H. Ross in Continental Airlines, Inc./People Express, 1991, pp. 119-120

There have been (and continue to be) airlines that declare bankruptcy, reorganize, and continue flying.

37. Another factor that is often considered in balancing career prospects is whether one airline brings to the combined company something of substantial value. Examples of this include hubs,<sup>26</sup> routes or route authority,<sup>27</sup> gates at busy airports, and desirable equipment, whether in service or on order.<sup>28</sup> Pilots from airlines that do bring something of value are often placed more favorably on the merged seniority list than pilots from airlines that do not bring such things, other factors being equal.

38. Arbitrators can consider the pre-transaction job status of the pilots. That is, merged seniority lists can be created taking rank into consideration. For example, if pilots for each airline were captains or first officers, the seniority lists of captains may be merged separately from the seniority lists of first officers. Additionally, the arbitrator may specify how these lists can be used to specify the order in which first officers can bid for captain positions. Similarly, arbitrators can also consider the equipment that the pilots flew prior to the transaction. For example, captains from one airline flying wide-bodied aircraft can be merged with captains from the other airline who fly wide-bodied aircraft and so on. This type of merger is known as a “status and equipment” merger.<sup>29</sup>

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<sup>25</sup> See, for example, Arbitration Report of Richard I. Bloch, In the Matter of the Seniority integration Arbitration between the Pilots of Northwest Airlines, Inc. and the Pilots of Delta Air Lines, Inc., December 8, 2008, pp. 5-9.

<sup>26</sup> Arbitration Report of Jerome H. Ross in Continental Airlines, Inc./People Express, 1991, pp. 124-125.

<sup>27</sup> For example, Arbitration Report of Laurence E. Seibel, Flying Tiger Lines, Inc. - Seaboard World Airlines Inc., 1981, page 145.

<sup>28</sup> For example, Arbitration Report of Laurence E. Seibel, Flying Tiger Lines, Inc. - Seaboard World Airlines Inc., 1981, page 145.

<sup>29</sup> For example, Arbitration Report of Laurence E. Seibel, Flying Tiger Lines, Inc. - Seaboard World Airlines Inc., 1981, page 158.

39. Status and equipment mergers can result in merged lists that are imbalanced in terms of the relative positions of the pilots from the combining airlines. This can happen if the airlines being combined flew different categories of equipment prior to the transaction. For example, if pilots from an airline that flew only short haul commuter planes are merged with pilots from an airline that flew only larger, longer-haul aircraft, the pilots from the commuter airline might be placed in a group at the bottom of the merged list. The rationale for this placement is that, in the absence of the transaction, they had no prospect of advancing to flying the larger equipment or longer routes.<sup>30</sup>

40. In addition to reviewing the factors considered in merging the seniority lists, I also noted examples where the mean rank of pilots from each group could be computed from the available materials. I present these data in the next section of my report.

#### C. Empirical Analysis

41. In this section of my report, I define a metric for measuring how well pilots fare when seniority lists are merged. I then calculate this metric for those seniority list merges for which I was able to get the relevant information from arbitration awards or agreements. I also calculate my metric for the actual American-TWA merged seniority list and compare its value with the metrics for the other merged seniority lists.

##### 1. *Defining The Metric*

42. The metric I use is the proportional difference between the mean seniority rank of pilots from the acquiring airline on the merged seniority list and the mean seniority rank of pilots from the acquired airline on the merged seniority list. This is a straightforward summary measure of how merging the seniority lists affected the two groups of pilots. The proportional

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<sup>30</sup> I do not have data on the duties of its pilots at the time the seniority lists were integrated. As a result, it is not possible for me to allow for this factor in my estimate. Should this information become available,



difference in means is a standard measure of disparities between groups and of changes over time in key variables. It is widely used in the academic literature.<sup>31</sup>

43. A negative proportional difference in my metric indicates that pilots from the acquired airline were lower ranked, on average, than pilots from the acquiring airline. (Higher seniority pilots have lower numbered ranks than lower seniority pilots. The most senior pilot is ranked number one, for example.) A positive proportional difference indicates that pilots from the acquired airline were higher ranked, on average, than pilots from the acquiring airline. The absolute value of the proportional difference provides a measure of the size of the difference in mean ranks with larger absolute values indicating larger proportional difference in mean rank.

44. A hypothetical example will help clarify the calculation of this metric. In this hypothetical, two airlines (A and B) of equal size (100 pilots each) combine, with airline A acquiring airline B. There are many ways to merge their seniority lists. Consider three approaches,

45. Approach 1 is least favorable to the airline B pilots. In this approach, the first 100 places on the seniority list (1-100) go to airline A pilots and the next 100 places (101-200) go to airline B pilots (a complete bottom staple). The average rank of the airline A pilots is 50.5. The average rank of the airline B pilots is 150.5. The difference in mean ranks is  $-100=50.5-150.5$ .

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I may adjust my approach to take advantage of these data.

<sup>31</sup> See for example, Oaxaca, R., "Male-Female Wage Differentials In Urban Labor Markets", International Economic Review, Vol. 14, No. 3, (1973), page 694, Healy, P.M, Kang, S-H, Palepu, K.G. "The Effect of Accounting Procedure Changes on CEO's Cash Salary and Bonus Compensation", Journal of Accounting and Economics 9 (1987), Table 3, Ashenfelter, O. and Bloom, D., "Lawyers as Agents of the Devil in a Prisoner's Dilemma Game," NBER Working Paper No. 4447, (1993), Table 5, Farber, H. "Nonunion Wage Rates and the Threat of Unionization," Industrial and Labor Relations Review 58 (April 2005), page 337 and Staiger, D, Spetz, J, Phibbs, C. "Is There Monopsony in the Labor Market? Evidence from a Natural Experiment", Journal of Labor Economics, (2010), Table 1.

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The overall average rank is 100.5, and the proportional difference in mean ranks is  $-0.995 = -100/100.5$  (approximately -1).

46. Approach 2 is a straight merge. In this approach, the pilots from each airline are alternately selected and placed on the merged seniority list, arbitrarily beginning with an airline A pilot. The average rank of airline A pilots is 100 and the average rank of airline B pilots is 101. The difference in mean ranks is  $-1=100-101$ . The overall average rank is 100.5, and the proportional difference in mean ranks is  $-0.00995 = -1/100.5$  (approximately 0). Note that the difference in mean ranks differs from zero only because of the arbitrary (but necessary) choice to start the merge with a pilot from one airline or the other.

47. Approach 3 is intermediate with respect to how airline B pilots fare. In this approach, two pilots from airline A are selected followed by one pilot from airline B, and the process is repeated until all airline A pilots have been selected. At this point the remaining airline B pilots are bottom stapled. The average rank of airline A pilots is 75.5 and the average rank of airline B pilots is 125.5, including the 50 airline B pilots who are bottom stapled. The difference in mean ranks is -50. The overall average rank is 100.5, and the proportional difference in mean ranks is  $-0.49751 = -50/100.5$  (approximately  $\frac{1}{2}$ ).

## 2. *Comparison Of Outcomes Across Mergers*

48. In Table 1 (attached) I present my calculations of the proportional difference in mean ranks for each of the 19 seniority list mergers for which I could locate the data needed to calculate separately the mean rank on the merged seniority list of the pilots from each of the combining airlines.<sup>32</sup> Each row of the table contains information on a different seniority list

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<sup>32</sup> Republic Airways Holdings ("Republic") acquired Midwest Air Group ("Midwest") in July 2009 and acquired Lynx Aviation ("Lynx") and Frontier Airlines ("Frontier") in a second transaction in October 2009. The four seniority lists were combined in a single arbitration. (See ALPA055696-055790). While I have displayed this merger as three separate lines in the table, the statistics I show in the table are

merger.<sup>33</sup> Columns (4) and (5) of the table show the mean rank for pilots from the acquiring airline and the mean rank of pilots from the acquired airline. Column (6) displays the simple difference in mean ranks calculated as the mean rank of the pilots from the acquiring airline minus the mean rank of the pilots from acquired airline. Column (7) gives the mean rank of all pilots on the merged list. The final column (column (8)) shows the proportional difference in mean ranks (my metric). Column (8) is calculated as column (6) divided by column (7). The rows in Table 1 are arranged in descending order of the proportional difference in mean ranks.

49. The proportional difference in mean ranks does not, however, convey all of the information relevant to evaluating the impact of the merger on the status of the pilot groups. For example, prior to its acquisition by Republic, Lynx was bankrupt and only flying because of injections of money by Republic and, as far as the arbitrator could determine, had no prospect of ever being profitable.<sup>34</sup> Its pilots flew only regional turboprop planes. As a result, their career prospects, absent the acquisition, were poor. On the other hand, any placement on the merged seniority list might have been regarded by the former Lynx pilots as an improvement in their career prospects because the combined list afforded them the potential to advance to more lucrative flights and equipment than would have been available to them had they remained employed by Lynx. As a result, their placement on the combined seniority list was the least favorable of any pilot group I could analyze.

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computed from ranks in the seniority list that resulted from combining pilots from all four airlines. Note that an earlier airline using the name "Frontier" was acquired by Continental Airlines ("Continental") in September 1986 as part of its acquisition of People Express.

<sup>33</sup> There is one exception to this. When Air Canada acquired Canadian Airlines International ("Canadian Airlines") the merged seniority list was initially determined in 2001 by M.G. Mitchnick. Mitchnick's decision was overturned on appeal and the final merged seniority list was determined in 2003 by an arbitration panel composed of M.B. Keller, M. Vorster and R. Pink. I analyzed both the initial and the final merged lists, and I show the results of both analyses in the table to provide an additional reference point.

50. In another example, Republic's acquisition of the second Frontier resulted in the largest positive proportional difference in mean rank in the table. This resulted from the fact that prior to its acquisition by Republic, Frontier flew only larger, longer-haul narrow body planes, while Republic flew a mix of regional planes.<sup>35</sup> As a result, the arbitrator merged the Frontier pilots favorably relative to the Republic pilots.

51. The former TWA pilots had a proportional difference in mean ranks on their post-merger seniority list of -0.624. This is lower than the proportional difference in mean ranks in 15 of the other 18 mergers on the list. There are four mergers aside from American/TWA in Table 1 with proportional differences in mean rank of -0.60 or smaller (larger than 0.60 in absolute value): Republic/Lynx, Southwest/Airtran, Republic/Midwest and Continental/Frontier. Lynx and Midwest were so weak financially at the time of their acquisitions that each was only flying because of financial assistance from Republic.<sup>36</sup>

52. The experience of the former pilots of the first Frontier Airlines reflects the fact that, at the time it was acquired by Continental, Frontier was grounded and all of its pilots were on furlough.<sup>37</sup>

53. TWA was not comparable to Lynx, Midwest, or the first Frontier because, while it was weak financially, it was able to continue flying routes. Additionally, TWA brought a number of valuable assets to the combined airline. These assets are summarized in an analyst's

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<sup>34</sup> ALPA 055729 and ALPA 055715-055716.

<sup>35</sup> ALPA 055717

<sup>36</sup> I have not been able to determine why former Airtran pilots were placed so low on their post-transaction seniority list following the Southwest/Airtran transaction and will continue to research this question.

<sup>37</sup> ALPA 055252.

presentation prepared by American for presentation in January 2001.<sup>38</sup> They included "... 173 slots at key airports including JFK, LaGuardia, Washington Reagan, Orange County and O'Hare." The presentation notes that the additional gates at JFK and St. Louis would give the combined airline a share of the gates at those two airports that would be more than 50 percent. The presentation also highlights the fact that TWA would contribute 188 existing aircraft and 227 aircraft on order to the combined carrier. Indeed, TWA was sufficiently valuable that both Karl Icahn and Continental Airlines expressed interest in purchasing all or part of TWA as part of a reorganization.<sup>39</sup> Other things being equal, this factor would tend to raise the former TWA pilots on the merged seniority list.

54. In short, given TWA's circumstances at the time of its acquisition, the placement of its former pilots on the merged seniority list was unusually unfavorable, on average. In the next section of my report I turn to estimates of how a more appropriate merged seniority list might have been constructed.

## **V. Construction of the "But-For" Merged Seniority List**

55. I base my best estimate of the "but-for" seniority list on a composite of comparable mergers. In order to select comparable mergers I focus on two characteristics of TWA at the time of the deal. As I have indicated, TWA was in a weakened financial state. Other things being equal, this factor would normally depress the position of the former TWA pilots on a merged seniority list, but the adverse effect of TWA's financial position would be mitigated by the fact that TWA was still flying. Additionally as I described earlier, TWA provided the combined airline with a number of valuable assets.

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<sup>38</sup> ALPA 011621.

<sup>39</sup> [http://mba.tuck.dartmouth.edu/ccg/commentaries/Anatomy\\_TWA.html](http://mba.tuck.dartmouth.edu/ccg/commentaries/Anatomy_TWA.html), accessed on October 10 2012.

56. Accordingly, I chose my group of comparable mergers by looking for transactions in which the acquired airline was in weakened financial condition, but still flying, and contributed substantial assets to the combined airline. To determine which transactions met these criteria I relied primarily on statements in arbitrators' reports. These provide an independent, objective source for these data. I located seven transactions that met the criteria and for which I can calculate the proportional difference in mean ranks on the merged seniority lists: Flying Tiger/Seaboard, FedEx/Flying Tiger, Delta/Pan Am, Delta/Western, Air Canada/Canadian, Texas International/Continental and Alaska/Jet America.<sup>40, 41, 42</sup> I then averaged the proportional difference in mean ranks that resulted from merging these seven pairs of seniority lists. I found that this average is -0.15.

57. Therefore, I estimate that the proportional difference in mean ranks on the "but-for" seniority list would have been -0.15. A seniority list with a proportional difference in mean ranks of -0.15 can be prepared with either a bottom staple of former TWA pilots or a top staple

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<sup>40</sup> I drew information on the financial conditions and contributions of the acquired airlines from the relevant arbitrator's reports with the exception of Delta/Pan Am. My sources for the financial condition and contributions of Pan Am are Warwick, Graham, "Delta studies mini Pan Am service," *Flight International*, August 7-13, 1991, page 6 and Warwick, Graham, "Delta makes a difference," *Flight International*, August 21-27, 1991, page 20.

<sup>41</sup> There is one other seniority list merger in my data where the acquired airline was in financial difficulty at the time of the merger. This is the merger that resulted from Republic's acquisition of Frontier. Because of a pre-transaction mismatch in the types of equipment in service at the airlines being combined the former Frontier pilots were placed in unusually high positions on the merged seniority list. I have not included the Republic/Frontier seniority list merger in my group of comparable mergers because of these special circumstances. This decision is conservative in that including this merger would have resulted in an estimated "but-for" seniority list that would have been more favorable to the TWA pilots.

<sup>42</sup> There were two arbitration decisions in the Air Canada/Canadian transaction. In performing my analysis, I use the proportional mean rank difference from the merged seniority list that resulted from the Mitchnick arbitration. This was less favorable to the Canadian pilots than the seniority list that resulted from the later arbitration. As a result, my choice of which merged list to analyze is conservative.

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of American pilots and a ratio of the remaining pilots.<sup>43</sup> I understand from counsel for the plaintiffs that they expect to show that losses resulting from furloughs comprise the largest component of the plaintiffs' lost earnings. If this is correct, then a bottom staple of former TWA pilots is more conservative than a top staple of American pilots because a bottom staple implies larger losses from furloughs for former TWA pilots in the "but-for" world.

58. To be conservative I assume that the "but-for" list would have featured a bottom staple of 350 former TWA pilots. I also assume that the remaining 1,887 former TWA pilots would have been merged with the American pilots using a ratio of 5.81:1.<sup>44</sup> I have calculated a merged seniority list using these parameters, and this is my estimate of the "but-for" merged seniority list. It is included in my back up materials.<sup>45</sup>

59. In the absence of restrictions based on equipment or routes, this list can be used as it stands to calculate monetary losses. Alternatively, if eligibility restrictions based on routes or equipment are desired, then a subset of the estimated "but-for" seniority list can be created that maintains the ordering but consists only of pilots who are eligible for the particular route or equipment. Assignments of pilots to the restricted slots can then be made using this subset seniority list.

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<sup>43</sup> There is only one combination of bottom staple (assuming no top staple) and ratio that is consistent with a given proportional difference in mean ranks. This combination can be calculated mathematically. Similarly, there is only one combination of top staple (assuming no bottom staple) and ratio that is consistent with a given proportional difference in mean ranks. This combination can also be calculated mathematically.

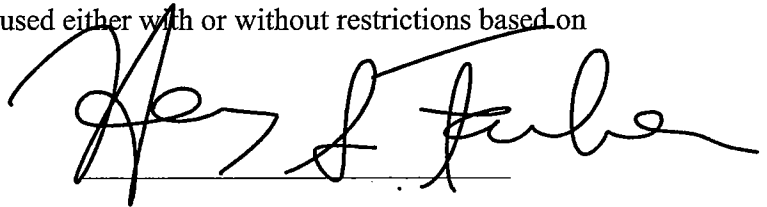
<sup>44</sup> While 5.81 is close to six, merging the seniority lists by taking exactly six American pilots for each former TWA pilot does not result in the required proportional difference in mean ranks. As a result, my procedure sometimes takes six American pilots for each former TWA pilot and sometimes takes five American pilots for each former TWA pilot in a fixed pattern and in such a way as to generate a merged seniority list with the required proportional difference in mean ranks.

<sup>45</sup> See the file sen\_list1.pdf.

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60. In order to provide a sense of the possible margin of error for my estimate, I have also calculated a second merged seniority list that represents an upper bound on how favorable the merged seniority list might have been to the former TWA pilots and a third merged seniority list that represents a lower bound on how favorable the merged list might have been to the former TWA pilots. To calculate these bounds, I first discarded from the seven comparable seniority list mergers the merger with the most favorable outcome for the pilots from the acquired airline (Flying Tiger/Seaboard) and the merger with the least favorable outcome for the pilots from the acquired airline (Alaska/Jet America). I then chose the most favorable outcome and the least favorable outcome from the remaining five comparable seniority list mergers as upper and lower bounds. That is, my upper bound is based on a proportional mean rank difference of -0.09 (FedEx/Flying Tiger) and my lower bound is based on a proportional mean rank difference of -0.22 (Texas International/Continental).

61. I have calculated merged seniority lists using these parameters and these recalculated seniority lists are included in my back up materials. The upper bound seniority list features a bottom staple of 210 former TWA pilots and a ratio of 5.43:1 for the remaining former TWA pilots. The lower bound seniority list features a bottom staple of 521 former TWA pilots and a ratio of 6.36:1 for the remaining former TWA pilots.<sup>46</sup> As with my estimated “but-for” list, these upper and lower bound lists can be used either with or without restrictions based on routes or equipment.



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October 12, 2012

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<sup>46</sup> See the file sen\_list2.pdf for the upper bound and the file sen\_list3.pdf for the lower bound.



TABLE 1: COMPARISON OF THE MEAN RANKS OF PILOTS ON POST-MERGER SENIORITY LISTS

## PILOTS FROM ACQUIRED COMPANIES COMPARED TO PILOTS FROM ACQUIRING COMPANIES

Name		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Number of pilots		Mean Rank					
Acquiring Airline	Acquired Airline	Year of merger	Acquiring Airline	Acquired Airline	Acquiring Airline	Acquired Airline	Difference in Mean Ranks (a)	Mean Rank of All Pilots	Proportional Difference in Mean Ranks (b)
Republic (c)	Frontier (d)	2011	1,909	646	1,445	1,029	416	1,491	0.279
Flying Tiger	Seaboard	1980	430	131	285	267	18	281	0.065
Valujet	AirTran (f,g)	1998	200	87	144	145	1	144	-0.007
Delta	NorthWest	2008	7,168	4,513	5,810	5,890	-80	5,841	-0.014
Air Canada (KR)	Canadian (e)	2001	1,407	819	1,102	1,134	-31	1,114	-0.028
FedEx	Flying Tiger	1989	1,001	873	898	982	-84	938	-0.090
Delta	PanAm	1991	9,005	782	4,855	5,338	-483	4,894	-0.099
Delta	Western	1986	4,194	1,310	2,673	3,008	-335	2,753	-0.122
Air Canada (MR)	Canadian (e)	2001	2,180	1,258	1,623	1,887	-264	1,720	-0.153
American Eagle	Business Express	1999	1,924	337	1,096	1,331	-235	1,131	-0.208
Texas International	Continental	1982	396	1,629	810	1,062	-252	998	-0.249
American	AirCal	1987	6,233	461	3,275	4,281	-1,006	3,345	-0.301
Alaska	Jet America	1986	489	96	273	394	-121	293	-0.410
Alaska International	Great Northern	1980	81	33	50	77	-27	58	-0.475
Continental	Frontier (d)	1986	2,600	449	1,390	2,310	-920	3,049	-0.603
American	TWA	2001	11,000	2,341	5,941	10,104	-4,163	6,671	-0.636
Republic (c)	Midwest	2011	1,909	325	1,445	2,381	-936	1,491	-0.627
Southwest	AirTran (f)	2011	5,882	1,696	3,234	5,718	-2,484	3,790	-0.660
Republic (c)	Lynx	2011	1,909	101	1,445	2,448	-1,003	1,491	-0.672

Notes Over

**Table 1 Continued**

The table displays data for merged seniority lists for which the required data could be located.

(a)  $[(1) - (2)]$  or the mean rank of the acquiring airline's pilots minus the mean rank of the acquired airline's pilots. Thus a negative value indicates that the pilots of the acquired airline were lower ranked, on average, after the seniority list merger than the pilots from the acquiring airline.

(b)  $(3) \div (4)$  or the difference in mean ranks as a proportion of the mean rank of all pilots.

(c) The seniority lists of Republic, Frontier, Midwest and Lynx were merged in a single arbitration. For these companies' pilots the table presents mean ranks from the seniority list resulting from the merger of all four groups of pilots.

(d) Frontier Airlines ceased operations in 1986 after being bought by Continental Airlines. A second airline with the same name was started in 1994 by a group that included executives of the 'original' Frontier Airlines. This was then acquired by Republic in 2011.

(e) The same merger between Air Canada and Candian Airlines had 2 different arbitration decisions. The original decision by Arbitrator Mitchnick (MR in table above) was overturned on appeal and the final merged seniority list was determined in 2003 by an arbitration panel composed of M.B. Keller, M. Vorster and R. Pink (KR in table above).

(f) Valujet Airlines purchased AirTran in 1997 and named the combined airline "AirTran Airways". This combined airline was purchased by Southwest Airways in 2011.

(g) For the merger between Valujet and AirTran, the number of "former AT pilots who have executed recognition cards" stated in the arbitration report at ALPA-056227, 87, is assumed to be the total number of former AirTran pilots merged. The number of Valujet pilots is then inferred to be 200 from the "total of 287 captains and first officers" mentioned at ALPA-056242.

**APPENDIX A**  
**CURRICULUM VITAE**

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**Major Fields of Interest**

Labor Economics      Econometrics      Law and Economics  
Industrial Organization      Political Economy

**Past Positions**

Professor (1986-1991), Associate Professor (1981-1986), Assistant Professor (1977-1981), Department of Economics, Massachusetts Institute of Technology.

Institute for Advanced Study, Member, School of Social Science, September 2006 - August 2007.

Russell Sage Foundation, Visiting Scholar, September 2002 - July 2003.

Fellow, Center for Advanced Study in the Behavioral Sciences, 1983-1984 and 1989-1990.

Director, Industrial Relations Section, Princeton University, July 1993-December 1993, July 1995-June 1998, July 2003 - June 2004.

Associate Editor, Industrial and Labor Relations Review, 1999-2004.

Associate Editor, Quarterly Journal of Economics, 1984-1989.

Editorial Board, American Economic Review, 1988-1991.

Social Science Research Council Advisory Group on a 1986 Quality of Employment Survey, 1985-86.

Visiting Fellow, University of Warwick, Summer 1982.

Member, Visiting Committee, Department of Economics, Princeton University, 1979-1990.

Member, Nominating Committee, Industrial Relations Research Association, 1990.

Co-Director, Summer Institute on Negotiation and Dispute Resolution, Center for Advanced Study in the Behavioral Sciences, Summer 1992.

John M. Olin Fellow, Cornell Law School, February 1994 and October 1994.

Member, Peer Review Panel, National Science Foundation Economics Program, Spring 1992, Spring 1994-Spring 1995.

Editorial Board, Industrial and Labor Relations Review, 1994-1999.

Member, Peer Review Panel, National Science Foundation Behavioral Sciences Infrastructure Competition, Spring 1999.

Member, Committee on the Status of Women in the Economics Profession, 1996-2000

Technical Review Committee, National Longitudinal Surveys, 1996-2004.

Social Science External Advisory Council, Cornell University, 2006-2008.

Executive and Supervisory Committee, CERGE, Charles University Prague, 2005-2010.

**Membership in Professional Societies**

American Economic Association

American Law and Economics Association

American Statistical Association

Econometric Society (Fellow)

Society of Labor Economists (Fellow)

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### Fellowships, Grants, Contracts, and Awards

- National Science Foundation, Grant No. SES-7924880 to Massachusetts Institute of Technology, "Economics of Labor Unions," 1/80-6/82.
- U.S. Department of Labor, Minimum Wage Study Commission, Contract No. J9E-00113 to Massachusetts Institute of Technology, "Union Wages and the Minimum Wage," 9/80-2/81.
- Alfred P. Sloan Research Fellowship, Alfred P. Sloan Foundation, 9/81-8/85.
- National Science Foundation, Grant No. SES-8207703 to Massachusetts Institute of Technology, "An Analysis of the Unionization Process in the United States," 7/82-6/83.
- Edwin E. Ghiselli Award for Research Design, American Psychological Association, Division 14, 1984. (with Max H. Bazerman)
- National Science Foundation, Grant No. SES-8408623 to National Bureau of Economic Research, "Threat Effects and the Extent of Unionization in the United States," 7/84-12/86.
- National Science Foundation, Grant No. SES-8605530 to National Bureau of Economic Research, "The Political Economy of Labor Unions," 8/86-12/88.
- National Science Foundation, Grant No. SES-8912664 to National Bureau of Economic Research, "Empirical Analysis of Inter-Firm Worker Mobility," 7/89-6/92.
- U.S. Department of Labor, Grant No. E-9-J-9-0050 to National Bureau of Economic Research, "Evaluating Competing Theories of Interfirm Worker Mobility," 9/89-1/92.
- U. S. Department of Labor, Office of the Assistant Secretary for Policy, Contract No. B9461588, "Incidence and Consequences of Job Loss," 12/95-4/46.
- U. S. Department of Labor, Office of the Assistant Secretary for Policy, Contract No. B9462164, "Alternative Employment Arrangements as a Response to Job Loss," 7/96-12/96.
- U. S. Department of Labor, Office of the Assistant Secretary for Policy, Contract No. B9492501, "Job Loss and Long-Term Employment in the U.S." 6/99-11/99.
- Richard E. Quandt Teaching Prize, Department of Economics, Princeton University, June 2000 and June 2011.

### Published Papers

- "The Composition of Strike Activity in the Construction Industry," *Industrial and Labor Relations Review*, April 1976: pp. 388-404. (with D.B. Lipsky)
- "The Determinants of Union Wage Demands: Some Preliminary Empirical Evidence," *Proceedings of the Thirtieth Annual Winter Meeting of the Industrial Relations Research Association*, 1977.
- "Bargaining Theory, Wage Outcomes, and the Occurrence of Strikes: An Econometric Analysis," *American Economic Review*, June 1978: pp. 262-271.

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- "Individual Preferences and Union Wage Determination: The Case of the United Mine Workers," *Journal of Political Economy*, October 1978: pp. 923-942.
- "The United Mine Workers and the Demand for Coal: An Econometric Analysis of Union Behavior," *Research in Labor Economics*, Vol. 2, 1978.
- "Interest Arbitration, Outcomes, and the Incentive to Bargain," *Industrial and Labor Relations Review*, October 1979: pp. 55-63. (with Harry C. Katz)
- "Unionism, Labor Turnover, and Wages of Young men," *Research in Labor Economics*, Vol. 3, 1980: pp. 33-35.
- "Why Workers Want Unions: The Role of Relative Wages and Job Characteristics," *Journal of Political Economy*, April 1980: pp. 349-369. (with Daniel H. Saks)
- "An Analysis of Final-Offer Arbitration," *Journal of Conflict Resolution*, December 1980: Vol. 24, No. 4, pp. 683-705.
- "Does Final-Offer Arbitration Encourage Bargaining?" *Proceedings of the Thirty-third Annual Meeting of the Industrial Relations Research Association*, 1980: pp. 219-226.
- "The Role of Arbitration in Dispute Settlement," *Monthly Labor Review*, May 1981.
- "Union Wages and the Minimum Wage," *Report of the Minimum Wage Study Commission*, Vol. VI, 1981.
- "Splitting-the-Difference in Interest Arbitration," *Industrial and Labor Relations Review*, October 1981, pp. 70-77.
- "Job Queues and the Union Status of Workers," *Industrial and Labor Relations Review*, April 1982: pp. 354-367. (with John M. Abowd)
- "Worker Preferences for Union Representation," *Research in Labor Economics*, Supplement 2, 1983: pp. 171-205.
- "The Determination of the Union Status of Workers," *Econometrica*, September 1983: pp. 1417-1437.
- "Right to Work Laws and the Extent of Unionization," *Journal of Labor Economics*, July 1984: pp. 319-352.
- "Analyzing the Decision Processes of Third Parties," *Sloan Management Review*, Fall 1985: pp. 39-48. (with Max H. Bazerman)
- "Arbitrator Decision Making: When are Final Offers Important?" *Industrial and Labor Relations Review*, October 1985: pp. 76-89. (with Max H. Bazerman)
- "The Extent of Unionization in the United States: Historical Trends and Prospects for the Future," Presented to M.I.T./Union Conference, June 1983. in *Challenges and Choices Facing American Labor*, Thomas Kochan, ed. M.I.T. Press, 1985.
- "The Analysis of Union Behavior." In Ashenfelter and Layard, eds. *The Handbook of Labor Economics*, North Holland Publishing Company, 1986.

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- "The General Basis of Arbitrator Behavior: An Empirical Analysis of Conventional and Final-Offer Arbitration," *Econometrica*, November 1986: pp. 1503-1528. (with Max H. Bazerman)
- "Why is there Disagreement in Bargaining?" *American Economic Review*, May 1987: pp. 347-352. (with Max H. Bazerman)
- "Job Duration, Seniority, and Earnings," *American Economic Review* June 1987: pp. 278-297. (with Katharine G. Abraham)
- "The Recent Decline of Unionization in the United States," *Science* 13 November 1987, pp. 915-920.
- "The Evolution of Public Sector Bargaining Laws." in *When Public Sector Employees Unionize*, Richard B. Freeman and Casey Ichniowski, eds., University of Chicago Press, 1988, pp. 129-166.
- "Returns to Seniority in Union and Nonunion Jobs: a New Look at the Evidence," *Industrial and Labor Relations Review* 42 October 1988: pp. 3-19. (with Katharine G. Abraham)
- "Divergent Expectations as a Cause of Disagreement in Bargaining: Evidence from a Comparison of Arbitration Schemes," *Quarterly Journal of Economics* 104 February 1989: pp. 99-120. (with Max H. Bazerman)
- "Trends in Worker Demand for Union Representation," *American Economic Review*, 79(2), May 1989: pp.166-171.
- "The Decline of Unionization in the United States: What Can be Learned from Recent Experience?," *Journal of Labor Economics* 8(1) January 1990: pp. S75-S105.
- "The Role of Arbitration Costs and Risk Aversion In Dispute Outcomes," *Industrial Relations* 29(3), Fall 1990: pp. 361-384. (with Margaret A. Neale and Max H. Bazerman)
- "Medical Malpractice: An Empirical Examination of the Litigation Process," *Rand Journal of Economics* 22(2), Summer 1991: pp. 199-217. (with Michelle J. White)
- "Is Arbitration Addictive? Evidence from the Laboratory and the Field," *Proceedings of the Forty-fourth Annual Meeting of the Industrial Relations Research Association*, 1992, pp. 402-410. (with Janet Currie)
- "An Experimental Comparison of Dispute Rates in Alternative Arbitration Systems," *Econometrica* 60(6), November 1992: pp. 1407-1433. (With Orley Ashenfelter, Janet Currie, and Matthew Spiegel)
- "Union Membership in the United States: The Decline Continues," in *Employee Representation: Alternatives and Future Directions*, Bruce Kaufman and Morris Kleiner, editors. Industrial Relations Research Association, 1993. (with Alan B. Krueger)
- "The Incidence and Costs of Job Loss: 1982-1991," *Brookings Papers on Economic Activity: Microeconomics*, 1993: pp. 73-132.
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- "Common Interests or Common Politics? Reinterpreting the Democratic Peace," *Journal of Politics* 59 May 1997: 393-417. (with Joanne Gowa)
- "The Litigious Plaintiff Hypothesis: Case Selection and Resolution," *Rand Journal of Economics* 28 1997 : S92-S112. (with Theodore Eisenberg)
- "The Changing Face of Job Loss in the United States, 1981-1995," *Brookings Papers on Economic Activity: Microeconomics*, 1997: 55-128.
- "Trends in Long-Term Employment in the United States: 1979-1996," in *Third Public GAAC Symposium: Labor Markets in the USA and Germany*, German-American Academic Council Foundation, Bonn and Washington, 1998.
- "Has the Rate of Job Loss Increased in the Nineties?" *Proceedings of the Fiftieth Annual Winter Meeting of the Industrial Relations Research Association*, Volume 1, 1998: 88-97.
- "Are Lifetime Jobs Disappearing? Job Duration in the United States: 1973-1993," in *Labor Statistics Measurement Issues*, John Haltiwanger, Marilyn Manser, and Robert Topel, eds., University of Chicago Press, 1998. pp. 157-203.
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- "Alternative Employment Arrangements as a Response to Job Loss," *Journal of Labor Economics*, October 1999. pp. S142-S169.
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- "Accounting for the Decline of Unions in the Private Sector, 1973-1998," *Journal of Labor Research*, Summer 2001. pp. 459-485. Reprinted in *The Future of Private Sector Unionism in the United States* James T. Bennett and Bruce E. Kaufman, eds. Armonk, NY. M. E. Sharpe. (with Bruce Western)
- "Ronald Reagan and the Politics of Declining Union Organization," *British Journal of Industrial Relations*, September 2002. pp. 385-401. (with Bruce Western)
- "The Government As Litigant: Further Tests of the Case Selection Model," *American Law and Economics Review*, 2003. (with Theodore Eisenberg)
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- "Job Loss in the United States, 1981-2001," *Research in Labor Economics* 23 (2004), pp. 69-117.
- "Is Tomorrow Another Day? The Labor Supply of New York City Cab Drivers," *Journal of Political Economy* 113 (February 2005), pp. 46-82.
- "Nonunion Wage Rates and the Threat of Unionization," *Industrial and Labor Relations Review* 58 (April 2005), pp. 335-352.
- "What do we know about Job Loss in the United States? Evidence from the Displaced Workers Survey, 1981-2004," *Economic Perspectives*, Federal Reserve Bank of Chicago (Second Quarter, 2005), pp. 13-28.
- "Union Membership in the United States: The Divergence between the Public and Private Sectors," in *Collective Bargaining in Education: Negotiating Change in Today's Schools*, Jane Hannaway and Andrew J. Rotherham, eds. Harvard Education Press, 2006, pp. 27-51.
- "Is the 'Company Man' an Anachronism? Trends in Long Term Employment in the U.S." in *The Price of Indenpendence*, Sheldon Danziger and Cecilia Rouse, eds. Russell Sage, 2007, pp. 56-83.
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- "The Changing Relationship Between Job Loss Announcements and Stock Prices, 1970-99," *Labour Economics*, January 2009: 1-11. (with Kevin Hallock).
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**Sworn Testimony  
In the Past Five Years  
10/12/2012  
Henry S. Farber**

1. Hearing testimony, before the National Labor Relations Board in the matter of New York University, employer, and GSOC/UAW, petitioner. Case 2-RC-23481, January 2011.
2. Deposition testimony, Clarke et al., v. Baptist Memorial Healthcare et al., USDC Western District of Tennessee, 2:06-cv-02377-MaV, September 2008
3. Deposition testimony, Milwaukee County v. Mercer Human Resources Consulting, Inc., Eastern District of Wisconsin, 06-CV-00372-CNC, March 2008.
4. Deposition testimony, Fleishman et al., v. Albany Medical Center et al., USDC Northern District of New York, 06-CV-0765, January 2008
5. Deposition testimony, Maderazo et al., v. VHS San Antonio Partners et al., USDC Western District of Texas, 06-CA-0535, January 2008
6. Testimony as a witness at a Daubert Hearing, Birda Trollinger, et al, v. Tyson Foods, Inc., et al., USDC Eastern District of Tennessee, 4:02-CV-23, November, 2007.
7. Deposition testimony, Birda Trollinger, et al, v. Tyson Foods, Inc., et al., USDC Eastern District of Tennessee, 4:02-CV-23, October, 2007.

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**APPENDIX B**  
**DOCUMENTS CONSIDERED**

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## SENIORITY LIST MERGERS

### Negotiated Merges

1. Supplemental Agreement Between Delta Airlines, Inc. and The Air Line Pilots in the service of Delta Air Lines Inc. as Represented by The Air Line Pilots Association, International, Delta Acquisition of Pan American Assets, 1991. ALPA 055476-055497.
2. Agreement between Alaska Airlines, Inc. and the Air Line Pilots Association International, August 14, 1990 (ALPA055392 – ALPA055402) (In Arbitration Report of Richard I. Bloch, Jet America Airlines and Alaska Airlines.).
3. Letter of Agreement between Piedmont Aviation, Inc. and the Air Line Pilots in the Service of Piedmont Aviation, Inc. as Represented by the Air Line Pilots Association International, Empire Merger, February 12, 1986 (ALPA055237 – ALPA055244).
4. Seniority Integration Agreement between Southwest Airlines Co. and AirTran Airways, Inc., April 14, 2011 (ALPA055791 – ALPA055805, duplicate under ALPA055862 - ALPA055876).
5. Side Letter 9: Complete Integration of AirTran Pilots into Southwest Airlines Operation, July 29, 2011 (ALPA055806 – ALPA055838).
6. Questions and Answers Regarding Side Letter 9 to the SWAPA-Southwest CBA, (ALPA055839 – ALPA055846).
7. Letter of Agreement between AirTran Airways, Inc. and the Air Line Pilots in the Service of AirTran Airways, Inc. as Represented by the Air Line Pilots Association, Intl., Merger-Related Modifications to Collective Bargaining Agreement (ALPA055847 – ALPA055852, duplicate under ALPA055895 – ALPA055900).
8. Letter of Agreement between Southwest Airlines Co., AirTran Airways, Inc., Seniority List Integration Dispute Resolution, July 22, 2011 (ALPA055853 – ALPA055861, duplicate under ALPA055901 - ALPA055908).
9. Side Letter 10: Complete integration of AirTran Pilots into Southwest Airlines Operation, September 22, 2011 (ALPA055877 – ALPA055886).
10. Questions and Answers Regarding Side Letter 10 to the SWAPA-Southwest CBA, (ALPA055887 – ALPA055894).
11. Agreement between United Air Lines, Inc. and the Air Line Pilots in the Service of United Air Lines, Inc. as Represented by the Air Line Pilots Association International, United Air Lines and Pan Am (Pacific Division), January 8, 1986 (ALPA055221 - ALPA055223).
12. Agreement Respecting Integration of Certain Pilots of Pan American World Airways into United Airlines Pilots Seniority List, November 7, 1985 (ALPA055224 – ALPA055232).
13. Letters from David Pringle, Senior Vice President of Human Resources, United, to UAL/ALPA MEC Merger Committee and Pan Am/United ALPA Merger Committee, December 13, 1985 (ALPA055233 – ALPA055236).
14. Merger Agreement between American Eagle Airlines, Inc., Executive Airlines, Inc., Business Express Airlines, Inc. and the Airline Pilots in the service of American Eagle Airlines, Inc., Executive Airlines, Inc., Business Express Airlines, Inc. as represented by The Airline Pilots Association International, Business Express Airlines Transition Agreement, 1999. (ALPA 056149 – ALPA 056224)

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15. Merger Agreement between Braniff, Inc. and The Air Line Pilots in the service of Braniff, Inc. as represented by The Air Line Pilots Association, International, Florida Express Merger, 1988. (ALPA 056101 – ALPA 056116)
16. Merger Agreement between Braniff, Inc. and The Air Line Pilots in the service of Braniff, Inc. as represented by The Air Line Pilots Association, International, Florida Express Merger, 1989. (ALPA 056117 – ALPA 056123)

#### **Arbitration Reports**

17. Arbitration Report of Jerome H. Ross in Continental Airlines, Inc./People Express, 1991.
18. Arbitration Report of M.G. Picher in Air Canada/Air Nova/Air Alliance/Air Ontario/Air B.C./NWT Air, 1995.
19. Arbitration Report of Herbert Fishgold in United Airlines/Pan American World Airways (European Routes), 1991.
20. Arbitration Report of Thomas T. Roberts in Northwest Airlines/Republic Airlines, 1989.
21. Arbitration Report of Donald R. Munroe, Q.C. in Canadian Airlines/Wardair, 1990.
22. Arbitration Report of George Nicolau in Federal Express/Flying Tigers, 1990 - Opinion.
23. Arbitration Report of George Nicolau in Federal Express/Flying Tigers, 1990 – Award.
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25. Expert Witness Report of David E. Feller, Promotion and Seniority Rights of Pilots Employed by Air New Zealand, David E. Feller, 1980.
26. Arbitration Report of David E. Feller, Alaska International Air Inc. - Great Northern Airlines Inc., 1982.
27. Arbitration Report of David E. Feller, Canadian Pacific Airlines- Eastern Provincial Airways, 1986.
28. Arbitration Report of Martin Teplitsky, Canadian Pacific Airlines Master Executive Council – Nordair Master Executive Council - Pacific Western Master Executive Council - Eastern Provincial Master Executive Council, 1987.
29. Arbitration Report of George Nicolau, Continental Airlines- Frontier Airlines, 1987.
30. Arbitration Report of Richard I. Bloch, Continental Airlines- New York Air, 1986.
31. Arbitration Report of Marcia L. Greenbaum et al, Texas International Airlines, Inc. Pilot Group- Continental Air Lines, Inc. Pilot Group, 1983.
32. Arbitration Report of David E. Feller, Delta Air Lines Pilots Merger Representative- Western Air Lines Merger Representative, 1989.
33. Arbitration Report of Laurence E. Seibel, Flying Tiger Lines, Inc. - Seaboard World Airlines Inc., 1981.
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35. Arbitration Report of Richard I. Bloch et al, Pilots of Republic Airlines Inc. - Pilots formerly employed by Hughes Air-West, Inc., 1981.
36. Arbitration report of Lewis M. Gill, Merger of Flight Deck Crew Member Seniority Lists, Pan American World Airlines and National Airlines, 1981.
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38. Arbitration Report of M.G. Mitchnick, Air Canada Pilots' Association- Air Line Pilots Association (representing Canadian Airlines Merging Committee), 2001.
39. Arbitration Report of M.B.Keller et al, Air Canada Pilots' Association- Air Line Pilots Association (representing Canadian Airlines Merging Committee), 2003.
40. Canada Industrial Relations Board Reasons for Decision, Air Canada Pilots' Association- Air Line Pilots Association, July 10 2002.
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43. Award by Lewis M. Gill, Merger of Flight Deck Crew Member of Seniority Lists, Pan Am and National Airlines, March 12, 1981 (ALPA055220A – ALPA055220O).
44. Arbitration Report of Dana E. Eischen, In the Matter of Seniority List Integration Arbitration, Republic Airline/Chautauqua Airlines/Shuttle America, Frontier Airlines, Lynx Aviation, and Republic Airways Holdings, Inc., February 19, 2011 (ALPA055696 – ALPA055790).
45. Arbitration Report of Marcia L. Greenbaum, Air Line Pilots Association International Arbitration Opinion and Award in the Matter of Former Pan American World Airways Pilot Group of 42 (the London Transferees) and United Airlines, Inc. Preacquisition Pilot Group, September 23 and January 23, 1993 (ALPA055498 - ALPA055667).
46. Arbitration Report of Richard I. Bloch , In the Matter of the Seniority integration Arbitration between the Pilots of Northwest Airlines, Inc. and the Pilots of Delta Air Lines, Inc., December 8, 2008.
47. Arbitration Report of George Nicolau, In the Matter of the Seniority Integration of the Pilots of US Airways, Inc. and the Pilots of America West Airlines, Inc., May 1, 2007.
48. Concurring and Dissenting Opinion by Captain James P. Brucia, Pilot Neutral , In the Matter of the Seniority Integration of the Pilots of US Airways, Inc. and the Pilots of America West Airlines, May 1, 2007.
49. Arbitration Report of James F. Searce, Airtran Holdings, Inc. d/b/a AirTran Airways – National Pilot's Association – Donald Warzocha, et al., 1999 (Valujet – AirTran). (ALPA 056225 – ALPA 056252 and ALPA 056253 – ALPA 056254)

#### **Reported Federal Decision**

50. Air Wisconsin Pilots Protection Committee v. Sanderson, 909 F.2d 213 (7th Cir. 1990)

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53. *Brady, et al. v. Air Line Pilots Assoc.*, Jury Verdict, July 13, 2011.

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54. *Brady, et al. v. Air Line Pilots Assoc.*, Plaintiffs' First Request for Production of Documents Directed to Defendant ALPA on the Issue of Damages
55. *Brady, et al. v. Air Line Pilots Assoc.*, Memorandum of Defendant Air Line Pilots Association, Int'l in Support of its Motion for Summary Judgment (March 12, 2009)
56. *Brady, et al. v. Air Line Pilots Assoc.*, Plaintiffs' Memorandum of Law in Opposition to Defendants Motion for Summary Judgment.
57. *Brady, et al. v. Air Line Pilots Assoc.*, Trial Tr. Volume 1, pp. 1-175 (June 7 2011).
58. *Brady, et al. v. Air Line Pilots Assoc.*, Trial Tr. Volume 10, pp. 1-21 (June 23 2011).
59. *Brady et al v. Air Line Pilots Association et al.*, Trial Tr. Volume 18, pp. 1-155 (July 11 2011).
60. *Brady et al v. Air Line Pilots Association et al.*, Trial Tr. Volume 19, pp. 1-115 (July 12 2011).

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##### **Seniority List Calculations:**

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63. sen\_bot\_staple.do
64. sen\_bot\_staple\_lb.do
65. sen\_bot\_staple\_ub.do
66. outsheet\_bot\_staple.do
67. outsheet\_bot\_staple\_lb.do
68. outsheet\_bot\_staple\_ub.do
69. AA.csv
70. TWA.csv
71. sen\_list1.csv
72. sen\_list2.csv
73. sen\_list3.csv

##### **Mean Ranks Calculations:**

74. mean ranks over seven mergers.xlsx
75. Mean Ranks 1.xlsx
76. Mean Ranks 2.xlsx
77. Mean Ranks 3.xlsx
78. AA AirCal.xlsx
79. AE1-BEX2 ranking.csv
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94. Warwick, Graham, "Delta studies mini Pan Am service," *Flight International*, August 7-13, 1991.
95. Warwick, Graham, "Delta makes a difference," *Flight International*, August 21-27, 1991.
96. Neumann, A., *Airline Mergers and Labor Integration Provisions Under Federal Law*, Information Brief, Minnesota House Of Representatives Research Department , St. Paul, MN, June 2008
97. *Standard Allegheny Mohawk Labor Protective Provisions*, Published at 59 C.A.B. 45.
98. [http://mba.tuck.dartmouth.edu/ccg/commentaries/Anatomy\\_TWA.html](http://mba.tuck.dartmouth.edu/ccg/commentaries/Anatomy_TWA.html), accessed on October 10 2012.
99. US mergers.pdf
100. ALPA008497 – ALPA08498
101. ALPA008500
102. ALPA006032 – ALPA006036
103. ALPA006052
104. ALPA023652
105. ALPA004671 – ALPA004678
106. ALPA023658 – ALPA023659
107. ALPA006061 – ALPA006062
108. P00438 – P00450
109. ALPA021078 – ALPA021079
110. ALPA001808 – ALPA001827

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- 111. ALPA004748 – ALPA004756
- 112. ALPA004757 – ALPA004758
- 113. ALPA001507 – ALPA001524
- 114. ALPA011621 – ALPA011638
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